

Docket No.: 1759.066
Serial Number: 10/035,018

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REMARKS

Without acquiescing to the propriety of the rejections in the Office Action dated November 2, 2005, claims 1-3 have been amended, and new claim 4 has been added. Entry of the amendments, reconsideration of the application and allowance of all claims pending herein are respectfully requested in view of the remarks below. Claims 1-4 are now pending.

Applicant gratefully acknowledges the time granted its undersigned representative on September 11, 2006 in which the present application and the cited references were discussed.

Rejections Under 35 U.S.C. § 103:

Claim 1 stands rejected under 35 U.S.C. § 103(a) as being obvious over Mikito and Hiroshi (Japanese Patent No. 05146841). Mikito is alleged to teach or suggest all the features of the claims of the present application except for the maintaining of at least one shape of one or more shapes of at least one of a recess and a cavity during the heading process, which is alleged to be taught by Hiroshi.

Amended claim 1 of the present application recites, inter alia, a method for manufacturing parts that are molded then forged which include one or more recesses, and the method includes creating a foundry preform having one or more pierced or blind recesses or cavities. The preform is transferred to a tunnel furnace to ensure a uniform temperature of the preform. The preform is positioned in a heading die exposed on a press and at least one multi-directional rod is introduced into at least one of a recess and a cavity of the one or more recesses or cavities of the preform by a control means according to a command prior to a heading operation. The heading operation is performed on the preform to create a forged preform with the at least one rod being temporarily positioned inside the recess and/or cavity. At least one shape of the one or more shapes of the at least one of a recess and a cavity is maintained by the at least one rod during the heading operation. The at least one rod positioned in the at least one of a recess and a cavity is withdrawn by the control means.

Mikito discloses forming a cast molten metal inside a first die to form a pre-forming product which is smaller than the final product desired. The pre-forming product is then put inside a second die having a shape of the product desired and the die is sealed except for

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openings to allow pressing means to pass therethrough. The pre-forming product is in a pasty, semi-liquid, semi-solid state, and the pressing means applies pressure to the pre-forming product to force it to conform to the shape of the interior of the second die. Also, objects may be arranged to protrude into the interior portion of the die to form cavities therein. As depicted in FIGS. 6, 8 and 9, cavities 51 and 52 are created in a first step and in a second step a die 62 compresses the product to cause movement of the pasty, semi-liquid, semi-solid metal material to fill in the space around spindles 63 and 64 located in cavities 51 and 52. However, there is no disclosure of at least one shape of at least one of a recess and a cavity of a foundry preform being substantially maintained by a multi-directional rod during a heading operation. Instead, as noted above, a shape of the preform product is changed by the pressure applied by die 62 causing movement of material in to spaces around spindle 63 and 64. Further, there is no disclosure of at least one multi-directional rod being introduced into preform recesses or cavity by a control means according to a command prior to a heading operation nor such a rod being withdrawn by such control means after the heading operation.

Hiroshi discloses an insert remaining in situ in a core during a casting operational phase and the insert assembly produced is then subjected to a sizing or heading operation. However, there is no disclosure of a multi-directional rod being inserted into a recess or cavity of a foundry preform to substantially maintain a shape of such recess or cavity during a heading operation nor the introduction of such a rod by a control means according to a command prior to the heading operation and the removal of such a rod after the heading operation by the control means, as recited in claim 1. Instead, Hiroshi discloses an insert remaining in a core during a casting and forging phase which teaches away from the introduction and removal of a multi-directional rod prior to, and after, a heading operation as recited in claim 1 of the present application.

Further, even if the references were combined as alleged, there is no disclosure, teaching or suggestion in either of these references, or their combination, of the introduction of a multi-directional rod into a recess and/or a cavity of the foundry preform by a control means according to a command prior to a heading operation, nor the withdrawing of such a rod after a heading operation by a control means. Mikito discloses a heading operation which causes the movement of semi-liquid metal to fill in spaces around spindles located in cavities thereof and Hiroshi discloses an inserted pin which is subjected to a casting and heading operation, but neither

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Hiroshi nor Mikito discloses a control means for inserting and withdrawing a rod for maintaining a shape of a recess and/or a cavity of a preform. Thus, because all the features (e.g., introducing at least one multi-directional rod into a recess and/or a cavity of a foundry preform, substantially maintaining at least one shape of the recess and/or cavity of a foundry preform by the at least one rod during a heading operation, receiving a preform in a tunnel furnace to ensure a uniform temperature thereof, performing a heading operation on the preform, and withdrawing the at least one rod by the control means) of claim 1 of the present application are not taught, disclosed or suggested by Mikito, nor a combination of Mikito with Hiroshi, this claim cannot be obvious over these references. The dependent claims are believed not to be obvious for the same reasons and for its own additional features. Thus, these claims are believed to be allowable.

Also, amended claim 2 recites, *inter alia*, the control means of claim 1 comprising one or more multi-directional rod translation mechanisms positioned around the heading die receiving the foundry preform as recited in claim 1. There is no disclosure in Mikito or Hiroshi of such a control means nor the control means including a rod translation mechanism which is positioned around a heading die receiving a foundry preform. Thus, claim 2 is believed to be allowable for the same reasons described above for claim 1 and for the additional features of the rod translation mechanisms positioned around the heading die. New claim 4 incorporates a portion of previous claim 2 and further comprises a control means comprising a cylinder-type control means which is also not disclosed, taught, or suggested by the cited references.

Also, amended claim 3 is believed to be allowable for the same reasons as claim 1 and for the additional feature of the preform prior to the heading operation being a solid-state. Further, relative to the Mikito reference, the alleged preform is a pasty, semi-liquid, semi-solid metal material in contrast to the recitation in claim 3 of the preform being a solid prior to the heading operation. Thus, claim 3 cannot be anticipated or obvious over Mikito for this additional feature along with those recited in claim 1. Thus, the dependent claims are believed to be allowable.

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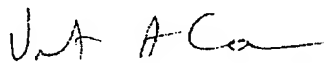
CONCLUSION

It is believed that the application is in condition for allowance, and such action is respectfully requested.

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If a telephone conference would be of assistance in advancing prosecution of the subject application, Applicant's undersigned attorney invites the Examiner to telephone him at the number provided.

Respectfully submitted,



Victor A. Cardona
Attorney for Applicant
Registration No. 44,589

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HESLIN ROTHENBERG FARLEY & MESITI, P.C.

5 Columbia Circle

Albany, New York 12203

Telephone: (518) 452-5600

Facsimile: (518) 452-5579